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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,902	03/04/2004	Kazuyuki Iwamoto	03500.017942.	4469

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EXAMINER	
PHAM, HAI CHI	
ART UNIT	**PAPER NUMBER**
2861	

DATE MAILED: 04/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/791,902	IWAMOTO, KAZUYUKI	
	Examiner	Art Unit	
	Hai C. Pham	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-17 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-17 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 04 March 2004 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figures 9-14 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-3, 6, 8-11, 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakajima et al. (U.S. 6,621,512).

Nakajima et al. discloses in Fig. 26 a multi-beam scanning apparatus comprising a first lens barrel portion (first laser diode mounting portion of the supporting member 339) for holding a first laser element (laser diode 321a), a second lens barrel portion (second laser diode mounting portion of the supporting member 339), of which an optical axis is slanted with respect to an optical axis of the first lens barrel portion (the optical axes of the laser diodes 321a and 321b as defined by the respective mounting portions are at an intersecting angle Φ, for holding a second laser element (laser diode 321b), the second lens barrel portion being provided as one unit with the first lens barrel portion (the first and second laser diode mounting portions form an integral part of the supporting member 339), a first lens supporting portion provided at a tip of the first lens barrel portion to support a first collimator lens (the first coupling or collimator lens 323a is attached to one surface of the projection extending from the forward face of the laser diode supporting member 339), and a second lens supporting portion provided at a tip of the second lens barrel portion to support a second collimator lens (the second

coupling or collimator lens 323b is attached to the other surface of the projection extending from the forward face of the laser diode supporting member 339) (col. 18, lines 53-59), wherein the first and second lens supporting portions can support the collimator lenses with adjustment ranges stretching in optical axial directions, respectively, and the first and second collimator lenses are fixed and supported at positions adjusted within the adjustment ranges, respectively (the positions of the first and second coupling lenses are adjusted in X, Y, Z-directions, the X-direction being the emission axial direction, before the lenses are secured by adhesive to the projection extending from the forward face of the laser diode supporting member 339, the projection having an extended surface necessary for adapting such positional adjustment of the lenses) (col. 19, lines 48-63) (col. 21, lines 46-55). With regard to claim 9, Nakajima et al. also teaches a rotary mirror (polygon mirror 42) for running the first and second laser beams, which are brought close to each other by exiting the laser unit, together (Fig. 5).

Nakajima et al. further teaches:

- the first and second collimator lenses (323a-323b) are bonded (by adhesive) to the first and second lens supporting portions, respectively,
- the first and second lens supporting portions partially support circumferential surfaces of the collimator lenses (the coupling/collimator lenses 323a-b are fixed by adhesive to the projection extending from the forward face of the laser diode supporting member 339, the attached portion being a portion of the total circumference of the lenses),

- the first and second laser elements (laser diodes 321a-321b) are fixed to a common electric substrate (circuit board 400) (Fig. 29A) (col. 21, lines 10-18) and are fixed by press fit to the first and second lens supporting portions (col. 9, lines 1-13) (col. 18, lines 53-59),
- optical axes of first and second laser beams emitted from the laser emitter are slanted with respect to each other to bring the first and second laser beams close to each other (Figs. 26, 27A-27B).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 4-5 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima et al. in view of Sato et al. (U.S. 6,928,100).

Nakajima et al. discloses all the basic limitations of the claimed invention except for the first and second lens supporting portions having plural projections that are projected from the tips of the lens barrel portions.

Sato et al. discloses a laser emitter comprising a laser holder (10) having a cylindrical portion (11) for holding a semiconductor laser S, and a lens supporting portion (lens accommodating portion 13) provided at the tip of the cylindrical portion to support the collimator lens C, the lens accommodating portion (13) being formed by a

plurality of projections defined by the notches (14) and partially supporting the circumferential surface of the collimator lens C (Figs. 1-3) (col. 5, lines 10-21).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide a plurality of projections at the tips of the laser supporting member to the device of Nakajima et al. as taught by Sato et al. The motivation for doing so would have been to allow the collimator lens to be supported surely and reliably as suggested by Sato et al. at col. 6, lines 14-26.

7. Claims 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima et al. in view of Komatsu (U.S. 5,774,248).

Nakajima et al. discloses all the basic limitations of the claimed invention except for the diaphragm portion for shaping a shape of laser light.

Komatsu discloses an optical scanning apparatus comprising a laser holder (12) for holding a laser element (1), a lens supporting portion provided at the tip of the laser holder for supporting a collimator lens (2), and a laser-beam diaphragm (78) for shaping and controlling the size of the laser beam (Fig. 10).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the laser-beam diaphragm into the device of Nakajima et al. as taught by Komatsu. The motivation for doing so would have been to adjust the size and shape of the laser beam.

8. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima et al. in view of Tanaka et al. (Pub. No. U.S. 2003/0173508).

Nakajima et al. discloses all the basic limitations of the claimed invention except for the holder portion being provided with a synchronization detecting portion for detecting synchronous timing of laser beams and a slit for restricting a light flux that is incident on the synchronization detecting portion.

Tanaka et al. discloses in Fig. 2 an optical scanning apparatus comprising a laser holder (9b) for holding a laser element (9a) and for supporting a collimator lens (9c), a common circuit substrate (9d) on which are mounted the laser element and a synchronization detector (18), and a synchronization detection regulating portion (16a) being provided on the optical box (16) in front of the light receiving surface of the synchronization detector for regulating the light flux incident on the synchronization detector.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the device of Nakajima et al. with the synchronization detector and the synchronization detection regulating portion as taught by Tanaka et al. The motivation for doing so would have been to regulate the light flux incident on the synchronization detector, which is served to generate the start timing of the laser scanning beam.

With regard to claim 17, Nakajima et al. also teaches the laser scanning device being used in an electrophotographic apparatus to expose a charged photosensitive

member (photosensitive drum 46, Fig. 5) to light for forming an image (col. 1, lines 7-17).

Pertinent Prior Art

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Matsushita et al. (U.S. 6,333,756) teaches an optical unit comprising two lens barrels for accommodating the pair of lasers and the respective collimator lenses, wherein the optical axes of the lens barrels are slanted with respect to each other.

Takase et al. (Pub. No. U.S. 2001/0052927) discloses a light source unit holding a pair of laser elements and their respective collimator lenses, the optical axis of the first lease element being set at a slanted angle with respect to that of the second laser element.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hai Pham

HAI PHAM
PRIMARY EXAMINER

April 20. 2006